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Reproductive Health and Access to Services among Rural-to-Urban Migrants in China

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Abstract

Reproductive health, including maternal health, is an important issue for China's migrant population. This paper briefly reviews the reproductive health situation, including reproductive health knowledge and status, health service use, and interventions among rural-to-urban migrants. By analysing three data sets, the authors assess the reproductive health status of migrants, focusing particularly on the self-reported reproductive health of migrant women; maternal health and service utilization of migrant women; and contraceptive use among migrant men. Their three surveys found the following common themes in terms of migrant reproductive health services: (i) migrants were found to have limited access to health service or poor health-seeking behaviour in some aspects of reproductive health; (ii) they often have relatively limited sources of service compared to local residence; and (iii) their knowledge and information about reproductive health service is not adequate. There have been some improvements over time, in some cases through project intervention. Further research is needed to assess the impact of policy change and other variety of efforts to improve migrants' reproductive health.

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Introduction

China has experienced large labour migration flows since the 1990s, and especially after 1992 when related policies shifted from controlling population mobility to encouraging rural surplus labour to move to urban areas for work. Before the 1990s, most rural woman migrated mainly because of marriage. From the early 1990s, more young single women migrated to the east coast in response to the demand for labour in manufacturing. The pattern of labour migration changed gradually with an even larger flow in the twenty-first century.[1] Duan et al. (2008) documented changes in migration since the early 1980s in China:

- migration became a wide-spread phenomenon;
- more people migrated for work;
- migrants tended to stay in their destination areas for a longer time;
- coastal areas attracted more migrants;
- more family members joined migrants in cities; and
- migrants were more gender-balanced as more women joined in. By the first decade of the 21st century, migrant women made up almost half of labour migrants and more married women migrated out, some with their children.

As economic growth benefited from the migrant labour force, migrants increased their income and obtained better skills from work experience in cities. However, being away from home and their community, migrants also encountered higher risks and negative experiences in their daily life, including health issues. While greater attention has been paid to the health issues of migrants in the past decade, much of the data used comes from the 1990s. Given the double selection of migrants on health (that is, those who are able to migrate out are mostly healthier than those who do not migrate, and migrants with health problems tend to return home sooner than those who are healthier), it seemed as if few migrants really had the need for health services, except for injuries sustained at the workplace. Even less attention was paid to the reproductive health of migrants, except for the purpose of birth control.

Reproductive health refers to the health and well-being of women and men in terms of sexuality, fertility regulation, pregnancy and birth, including maternal health and the health of the newborn. The need for reproductive health service varies among different sub-groups in different reproductive periods of their lives. It is important for youth who have not married to have adequate knowledge about sexuality and safe sex, to be made aware of risks of unprotected sex, and to be given the means to prevent unwanted pregnancy; while for married couples, the important issues are helping them to have a healthy baby at the right time (that is, when couples think they are ready to raise a baby and the pregnancy is wanted by women), and to use a suitable contraceptive method when they are not ready to have a baby or decide to stop childbearing. For older women nearing menopause, regular health check-ups are important to prevent or enable an early diagnosis of disease in the reproductive system, such as breast or cervical cancer.

As more reported cases and research findings revealed the extent of reproductive health problems among migrants, especially among youth, the Chinese government starting paying more attention to the issue. As China has focused on reducing maternal mortality and providing universal reproductive health care services to meet the fifth goal of UN Millennium Development Goals, migrants have been one of the focal groups. The health

[1] For the most recent publication on the trends of migration in China, please refer to Chan (2012).

issues of migrants are also addressed in related development plans, such as the Program for the Development of Women and Children. However, most efforts have been in the form of short-term projects or organized activities to address the different needs of migrants in cities. Some improvements have been observed, such as increased health knowledge or decreased neonatal death in some cities. However, with large rural-urban differences in the reproductive health service system, individual incomes, as well as in health beliefs, knowledge and practices, and health service use, the efforts seem neither satisfactory nor effective. The problems of under-provision and under-utilization of health services by migrants still remain.

Problems of reproductive health among migrants are not unique to China. The Programme of Action of International Conference on Population and Development (organized by UNFPA in 1994) specifically addressed the issue of reproductive health and rights of migrants, for example, in paragraph 7.11: "Migrants and displaced persons in many parts of the world have limited access to reproductive health care and may face specific serious threats to their reproductive health and rights. Services must be particularly sensitive to the needs of individual women and adolescents and responsive to their often powerless situation." However, in the Chinese context special attention should be paid to the study of migration and health because of the fast-changing context of both migration patterns and local government policy related to reproductive health needs of migrants. Both the migrants themselves and urban public services are changing rapidly. Compared with the migrant workers of one or two decades ago, the young migrant workers today have higher educational attainment, fewer siblings and higher expectations of their future careers. More research is needed to update our knowledge and to identify emerging issues and gaps. This paper seeks to contribute to that effort with both a literature review and new data analysis related to the situation of migrants' reproductive health in the last decade in China.

This paper includes a brief literature review and a description of data and methodology used in this paper. The major findings—self-reported reproductive health of migrant women, maternal health and service use of migrant women, and contraceptive use of migrant men—focus on different migrant groups. It ends with a brief conclusion, a discussion of policy implications and comments on further research priorities.

Research on Migrants' Reproductive Health in China: A Review

For several decades, the China government treated rural and urban dweller as two separate populations, identified by their household registration (*hukou*). A *hukou* status not only defines a person's rural or urban identity, but also identifies a person's residence locality. The identity is closely related to opportunities of education, employment and housing, as well as entitlement of social welfare and public service, including health service. Urban residents and migrants enjoyed different public service and social welfare according to their *hukou* status; budgets and facilities of public services were often available only to those holding a local urban *hukou*. In the 1950s, there was an effort to control the size of the urban population, and the change of *hukou* status from rural to urban or from other towns to large cities has been strictly limited. The migrants' issues discussed in China refer mostly to issues of migrants without a change of *hukou*.

Although cities have more resources in public health service and health care than rural areas, the massive and ever-increasing migration of rural labour force to urban areas

challenges the urban system. Research has found that migrants are less likely to use urban health services even if they have a health problem, due to institutional constraints and a variety of other reasons, such as lack of knowledge, information and awareness on the client side; and inadequate service and/or inappropriate approach from the supply side; but most of all, due to the lack of policy support for service provision and encouragement to use the service (see Liu et al., 2004; Jiang, 2004). However, other research has shown that migration itself can yield some positive impact on the reproductive health of migrants, regarding their knowledge, practice and service use (Tan et al., 2006), and has produced some observable outcomes, especially in the later 2000s (Li et al., 2010). The following review, based on research findings published in academic journals, will summarize related research regarding knowledge/ attitude/practice, reproductive health status, reproductive health service use and interventions among migrants. Note that most of the researches are from the Pearl River Delta area, Shanghai and east coastal areas as well as Beijing, since they have been major migration destinations in the last three decades.

We will review the literature for women and men separately, partly due to the difference in reproductive health issues addressed, and also because research has focused more on women than men.

Knowledge, attitude and practice of migrant women

The migration experience has been found to have an overall positive effect on the reproductive health of rural women. A multilevel multivariate analysis, based on a survey of returned migrants in Sichuan and Anhui, demonstrates that women who have returned home, especially those who had been living in a large city, are more likely to make family planning decisions by themselves or with their husbands, to have knowledge of modern contraceptive methods and to have received skilled birth assistance compared with non-migrant women (Chen et al., 2010).

However, a great deal of research has focused on the lack of knowledge about reproductive health and the low level of awareness about the importance of reproductive health care among migrant women. For those who migrate for work to make a higher income, the cost of reproductive ill-health seems less important. Constraints and gaps caused by rural-urban difference in social and cultural are believed to play a negative role in the awareness of reproductive health issues.

Zheng et al. (2001) and Wang (1999) focus on contraceptive knowledge among migrant women. Unprotected sex, unwanted pregnancy and induced abortion have been found to be serious problems among unmarried young migrants who make up the majority of the migrant population. A survey comparing Guangdong migrant women with women in Hong Kong and Taiwan Province of China shows that the average contraceptive knowledge score (CKS) is lowest among Guangdong migrant women (Ip et al., 2011). Emergency contraception (EC) is a way to make up for unprotected sex or contraception failure, and it can be purchased over counter in any pharmacy; using it appropriately would reduce unwanted pregnancy. Surveys among migrant women under age 40 in cities of Guangdong and Jiangsu show that respondents have limited knowledge of contraception. The proportion who know about emergency contraception is 46 per cent in Guangdong (Huang et al., 2005) and 35 per cent in Nanjing, the provincial capital of Jiangsu (Hang and Qian, 2007). Another survey, covering six provinces, found that contraceptive knowledge varies among migrant women with different marital status; a higher percentage (46 per cent) of unmarried migrant women had heard about emergency contraception than married women (27 per cent) (Liu et al., 2004). Given

that most contraceptive needs among married women are met, with contraceptive prevalence rate above 85 per cent, and the fact that most rural couples use a long-term contraceptive, such as intrauterine devices (IUDs), married women may not be concerned about the failure of temporary contraceptives. The 2001 National Family Planning and Reproductive Health Survey found that only 26.1 per cent of urban women had heard about EC (while the rural percentage is 7.8), while the highest percentage who knew about EC (41.4 per cent) was found among the 25-29 age group (Pan, 2003). However, knowledge does not help if women do not use EC because of a negative attitude toward it.

Additional research has found that migrant women are less likely to use reproductive health services due to limited knowledge and information, as well as less awareness on reproductive health care. The most serious problems have been found among unmarried migrants who have a low prevalence of modern contraceptive use. For example, a survey among migrant women workers in Qingdao found that 46.4 per cent of unmarried women did not use a contraceptive every time they had sex (Hou et al., 2009), while married migrants have a usage rate about 90 per cent, mainly with long-term contraceptives (Wang and Wu, 2009).

Reproductive health status of migrant women

Reproductive tract infection (RTI) is a major reproductive health problem among young women. The risk of infection is closely related to health behaviour, such as individual's sanitation and sex behaviour. An 18-province study in 1999-2000 (Wang et al., 2010) found that migrant women are more likely to have a chlamydia infection than rural women (4.79 per cent to 1.62 per cent), but at similar rates to that of urban women (5.09 per cent). Other studies have found that reproductive tract infection is the major reproductive health risk among migrant women (Wu et al. 2007; Hu et al. 2011). Although the problem had been identified a decade ago, it is still unsolved due to a lack of effective response.

Previous research has found that overall migrant women are less healthy compared to local urban women in the general area of reproductive health, especially in the area of maternal health. One study which compared maternal health care of migrants and local residents in Shanghai (Zhu et al., 2009) revealed that maternal deaths among migrants were significantly higher than local residents (58.0/100,000 to 11.6/100,000 on average) from 1996-2005, and the improvement was slower among migrants during the decade (54.7 to 48.5/100,000 for migrants and 22.5 to 1.6/100,000 for local residents). Data from other cities such as Beijing and Guangzhou show the same phenomenon. Most of the maternal deaths among migrants were judged to have been preventable if appropriate measures had been taken.

Although improvements have been observed in some aspects of maternal and child health, gaps between migrants and urban local residents remain. According to the health statistics of Shanghai during 1999-2008, the neonatal mortality of Shanghai residents has been significantly lower than that of non-residents, although the gap has been significantly narrowing during the decade, mostly due to improvement in regular maternal check-up and prenatal diagnoses among migrants (Li et al., 2010).

Service use among migrant women

Studies have found that the problem of health service under-utilization is common among migrant women in cities, including maternal health services for pregnant women (for example, Liu et al., 2006; Gao et al., 2008). The regular gynaecological check-up

rate[2] has been found to be 30-40 per cent lower among migrant women than that of among urban residents (Chen et al., 2006), with an even lower proportion having visited a doctor among those who had a check-up and were diagnosed with gynaecological symptoms. For example, a study in a district of Shanghai found that among migrants aged 16-49 who had had a physical check-up, 43.7 per cent had at least one symptom of reproductive tract infection in the last three months, and about 43.5 per cent did not visit a doctor when they should have (Wu et al., 2007). By looking the related literatures, the possible causes of health service under-use were found to be economic constraints and ability to pay, lack of health knowledge and awareness, lack of information and poor accessibility of service, and other policy and institutional constrains, such as not having health insurance (Niu, 2009).

Research findings about migrant men's reproductive health

The few studies that have been done on migrant men's reproductive health are mostly in the last decade. Like migrant women, the studies on migrant men find that they have a limited knowledge of reproductive health (Zhao et al., 2010), with a low awareness of health risks and of the need for self-protection (Du and Pan, 2007). They were also found to have a relatively casual attitude to sexuality; unprotected sex was common among unmarried male migrants as well as married men who migrated without their wives. A Shenzhen survey revealed that 53.6 per cent of unmarried migrant young men who had sex, had unprotected sex, and 26.5 per cent of them had got their girlfriend pregnant (Xie et al., 2005).

Zhao et al. (2009) and Zhu et al. (2008) found that a large proportion of young migrant men indulged in imprudent sexual behaviour or had reproductive system problems, but only a few of them saw doctors about these problems, due to a lack of courage or information. Low income and not having health insurance are also key obstacles to health service use among migrant men, just as they are for migrant women.

Research about interventions on reproductive health education

In the last decade, as reproductive health problems have been identified, more health intervention projects aimed at migrants have been launched. However, the existing evaluation literature on these projects is limited to interventions of health education and promotion, mostly aimed at improving knowledge and raise awareness, especially on HIV/AIDS prevention.

Studies show that interventions in health education improve basic knowledge about contraception, HIV/AIDS prevention and safe sex among migrants, and significantly promote contraceptive use, especially condom use (see Huang et al., 2008; Lin et al., 2010). Interventions among unmarried migrant men on reproductive health education and technical services were found to have significant effects on condom use, attitude change and the prevention of unwanted pregnancies (He et al., 2012).

Health promotion among migrant women in Tianjin significantly improved their knowledge of child immunization and service provision policy, and significantly raised the immunization rate (Chen et al., 2009).

[2] Gynecological check-up is a health service provided by government every 1-2 years in cities and 3-5 years in rural areas, and is ruled as mandatory by Ministry of Health. The gynecological check-up rate is one of the health indicators of National Program for the Development of Chinese Women (2001-2010 and 2011-2020).

Although some efforts have been made to meet the health care needs of migrants, including reproductive health of migrants in cities, and the government's inputs have continuously increased with the increase in the size of migration flow, substantial gaps still exist. However, few evaluation studies allow us to assess the effectiveness of service supply improvement. Xie et al. (2010) assessed the performance of Shenzhen reproductive health service for migrants and concluded that service coverage differs by districts within the city. On average, 50 per cent of migrants received health education, 60 per cent knew about related policy and service information, 80 per cent were able to name two or more contraceptives, 80 per cent had knowledge about HIV/AIDS prevention, and fewer than 50 per cent had received a reproductive health check up with no charge. Although 75 per cent respondents expressed satisfaction with the service they received, the study found that more investment is still needed as the service coverage in some districts is not satisfactory and service efficiency needs to be improved (Xie et al, 2010).

The rest of this paper reports on recent surveys we have carried out in order to further assess the reproductive health status of migrants, focusing particularly on self-reported reproductive health, maternal health and service use of migrant women, and contraceptive use among migrant men. Although these three topics do not cover all the important aspects of reproductive health, they are key issues for specific sub-groups of migrants.

Data and Methodology

Three datasets are used in this chapter. One of them is a two-part survey undertaken in a district of Beijing (2005 and 2011). The other two are cross-sectional surveys: one of migrant women workers in Guangzhou (2008) and the other of migrant men in Beijing (2004). Subsequently they will be referred to as the Beijing survey, the Guangzhou survey and the Beijing migrant men survey. The data sets share some common features as well as limitations: (i) none of them came from a random sample design—this is often the limitation of survey among migrants due to unavailable or incomplete sampling frame; however, (ii) each survey had a specific target population with a sampling strategy that led to a relatively satisfactory representative sample to the specific sub-group; and (iii) each survey questionnaire was designed according to an analytical framework and with valid measurement tools, which made it possible to apply a standard statistical methodology to analyse the data. Therefore, although the surveys took place in different geographical sites and at different times, together they provide a more interesting and more complete picture than if we just consider one of them. More details about the three surveys and data sets are included in Appendix A.

One shortcoming of the three data sets, however, is that they were not initially designed for the purpose of this paper, so some important information is not available. Furthermore, two of the surveys only collected information about migrants without reference to local residents. We will refer to other data sources to make the comparison, where possible, to identify issues specific to migrants.

Although we mainly apply quantitative analysis to the survey data, some qualitative information is also used, and other similar research findings will be referred to for comparison where appropriate. We are especially interested in correlations between key variables. We will report the main results with technical details provided in Appendix B. Each subsection below follows the same migrant-centred approach: we seek to understand the situation and status, to identify health risks or challenges of the sub-

group of migrants, to look for service availability or interventions that address health problems, to examine service use of migrants and to identify gaps or issues that still need to be addressed.

Major Findings

Self-reported reproductive health status and service use of migrant women

The Guangzhou survey collected self-reported information on the current status of reproductive health and service use of migrant women. Self-reported status has been shown, both for rural China and elsewhere (see Kaufman et al., 1999; Bang and Bang, 1989), to be a poor measure of the true prevalence of RTI in the population because it represents only the perceived prevalence of reproductive health-related problems. Although self-reported symptoms should not be used to gauge the true level of prevalence in a population, they do provide a cost-effective source of information for the study of reproductive health status in developing countries (Gorbach et al., 1998; Maitra et al., 2001).

The Guangzhou survey identified a high prevalence of self-reported RTI symptoms in both married and unmarried migrant workers. RTI symptoms were more prevalent among married respondents than among unmarried ones (see table 1). Of the unmarried respondents, 23.1 per cent had suffered from one RTI symptom and 4.3 per cent suffered from more than one symptom, compared respectively with 33.4 per cent and 6.8 per cent of married respondents. The difference was statistically significant between unmarried and married migrants. Among those respondents who suffered symptoms, 28.3 per cent of unmarried respondents and 9.7 per cent of married respondents did not seek medical services, a statistically significant difference.

Table 1: Self-admitted symptoms of reproductive tract infection (RTI)

Items	Unmarried		Married		Chi-square
	N	Per cent	N	Per cent	
Abnormal vaginal discharge	57	6.9	97	18.8	45.012**
Pruritus Vulvae	51	6.1	29	5.6	0.152
Pain or burning sensation on perineum	18	2.2	17	3.3	1.623
Ulceration perineum	0	0	2	0.4	1.142
Aberrant menses	126	15.2	67	13	1.203
Genital neoplasm	0	0	4	0.8	4.118*
Abnormal vagina bleeding	7	0.8	12	2.3	5.062*
Pain during intercourse	7	0.8	7	1.4	0.826
Other symptoms	7	0.8	20	3.9	14.965**
No symptoms	605	72.8	308	59.8	24.623**
Total	878	105.7	563	109.3	NA

* 0.01<p<0.05, ** p<0.01 NA: not applicable. **Note:** the total percentage added up to more than 100 per cent since some respondents reported more than one symptom. **Data source:** 2008 Guangzhou survey

For unmarried participants, the most common way of dealing with symptoms is to buy medicine (88 or 38.9 per cent). Sixty-seven married participants, comprising 32.4 per cent of all married participants who reported symptoms, chose to go to a sexual and reproductive health-specific hospital.

In total, 16 questions about sexual and reproductive health (SRH) knowledge were included in the Guangzhou survey questionnaire: nine questions concerning family planning, five regarding STI/HIV and one about sexual violence. Correct answers were valued as 1, incorrect or indecisive answers were valued as 0. The values were totalled to obtain a score for SRH knowledge per respondent (maximum score is 16 points). The median score for the married migrants in our study was 8, and the median score for unmarried was 5. Nonparametric test between two sub-groups show that married women tend to have a higher sexual and reproductive health knowledge score. Generally, both sub-groups reported low rates of accessing reproductive health information and services. Compared to their married peers, the unmarried migrant workers reported a much lower rate of accessing SRH information.

A multivariate analysis was used to identify the correlates of knowledge level. We divided the knowledge score into a low score group (≤ median scores) and a high score group (>median score). A multivariate logistic regression was undertaken with SRH knowledge rank as the dependent variable (see table B1 in Appendix B). In both the married and the unmarried group, age, education and reported reproductive symptoms had a significant impact on the SRH-related knowledge level. Younger women and women with higher education are more likely to have a higher knowledge score. Those who reported no symptoms are less likely to have a high score (this might be a two-way relationship, those who have more knowledge are more likely to aware of health problems, and those who aware of a symptom will probably looking for more knowledge and information about the problem).

A lack of access to health care and to SRH services for migrants found in the Guangzhou survey has also been found in previous investigations (for example, Lou et al., 2004; Hesketh et al., 2008). Furthermore, our data suggest that the marital status of migrants is correlated with access to health care and to SRH services, which is consistent with research on other population groups in China. Unmarried Chinese women, regardless of location or migration status, have significantly less access to SRH information and services compared to their married peers (see Cui et al., 2001; Tu et al., 2004). This may be explained by the fact that unmarried women are often ill-informed about accessing such services, since the promotion of SRH services is targeted mainly at married women. Additionally, an important obstacle to the provision of SRH information and services to unmarried people is the reluctance and ambivalence on the part of policy makers, programme managers, parents and service providers to serve the unmarried population. However, the results show that unmarried migrants are sexually active and lack adequate SRH services.

An intervention was carried out in the survey sites, and a study aimed at evaluating and comparing the effectiveness of basic intervention packages (BIP) and extended intervention packages (EIP) was carried out. Study findings show that the intervention programme had a positive influence on participants with respect to improvements in SRH knowledge, attitudes and related behaviours. SRH knowledge scores were higher at follow-up than at baseline; SRH attitude scores increased after the intervention among unmarried women ($P<0.05$), whereas there was no significant difference pre- and post-intervention among married women. The study also found there were some SRH-related behaviour changes after the intervention.

Maternal health and health service use of migrant women

Maternal health of migrants is an important issue for health departments, since maternal and neonatal mortality among migrants is much higher than that of local residents in large cities. Studies in the 1990s also found that migrant women often return home for maternal care and childbirth to avoid the high cost of city health services. Efforts have been made to reduce mortality by local government, which defines some hospitals to provide a lower price delivery (with governmental compensation) to low-income families. These efforts have yet to be evaluated for effectiveness.

The key measures of maternal health from the Beijing survey are the percentages of pregnant women receiving prenatal care and pregnant women who have a hospital delivery. The percentages for residents in cities like Beijing have been nearly 100 per cent for a long time. Migrants who had children were asked for the place of birth for each child in both Beijing surveys. By comparing samples for migrant women in 2005 and 2011, we found that an increasing number of migrant women delivered their babies in Beijing in recent years. In the 2005 survey, only 18 per cent of births were reported to have taken place somewhere other than the women's hometown. This percentage is even lower for births that occurred before 2000. The 2011 survey found that 55 per cent of births among migrant women aged 20-29 took place in Beijing, and 25 per cent among women aged 30 or older.

According to the 2005 survey, the reported percentage of hospital delivery is highest for births that occurred between 2000 and 2005 in Beijing. Between 2000 and 2005, 96 per cent of births to migrants in Beijing took place in a hospital; Before 2000, it was 81 per cent. For births that occurred in migrant's hometown, the percentage of hospital births is significantly lower, although it too has improved over time (see table 2). In 2011 survey, the hospital delivery rate is 99 per cent for a migrant's first child if the child was born in Beijing, and 95 per cent for second birth if born in Beijing.

For all the births in Beijing, 97 per cent of women said they received prenatal care, which is much higher than that for childbirth in their hometown (see table 2). The mother's age is found to be highly correlated with the probability of hospital delivery; younger women are more likely to deliver their baby in a hospital. Given such high rates, hospital delivery is no longer an effective indicator of maternal health among both local residents and migrants in urban areas.

Table 2: Maternal health care of migrants, 2005 and 2011 (per cent)

Survey year and birth order	Child born in hometown		Child born in Beijing	
	Prenatal care	Hospital delivery	Prenatal care	Hospital delivery
2011 First childbirth	79.2	83.7	96.8	98.6
Second childbirth	79.9	77.3	96.8	94.8
2005 First childbirth	-	73.9	-	89.8
Second childbirth	-	67.2	-	80.3

Note: Total reported childbirth in 2011 was 1228, 67.3 per cent were born in hometown, and 31.7 per cent born in Beijing; total reported childbirth in 2005 was 903, 81.9 per cent were born in hometown, and 18.1 per cent were born elsewhere. Prenatal care information was not collected in 2005 survey. Data source: 2005 and 2011 Beijing survey.

Regarding primary health care, the 2011 survey found 67.4 per cent migrant women had a regular physical check-up in the last two years, 75.3 per cent among women under age 30, and 60.6 per cent among women 30 years and older. More than 67 per cent of

women reported that they had a gynaecological exam in the last three years, which is higher than the national average in a survey result, which is about 55 per cent (NSB and ACWF，2011). The percentage of women who have never had a gynaecological exam was lower in 2011 survey (35.2 per cent) than it was in the 2005 survey (52.2 per cent). Most respondents showed a willingness to participate in a reproductive health check-up (64.3 per cent) and reproductive health seminars (58.9 per cent). Table 3 lists the service use status of some items in the 2005 and 2011 surveys, which also show that the overall service use has been increasing.

Table 3 Reproductive health/family planning services in Beijing, 2005 and 2011 (per cent)

Service item	2005				2011			
		Who paid				Who paid		
	Received service	Self	Partly by self	No charge	Received service	Self	Partly by self	No charge
Oral pills	6.7	20.6	17.6	61.8	23.5	26.2	8.4	65.4
Condoms	23.3	16.6	14.9	68.5	40.9	20.7	5.6	73.6
Gynecological check-up	24.7	44.6	14.5	41.0	44.6	64.3	16.0	19.7
Abortion	9.8	88.9	5.1	6.1	7.3	87.1	6.0	6.9
IUD insertion or removal	17.1	90.7	5.2	4.1	14.0	58.1	10.2	31.6
Prenatal care	—	—	—	—	28.6	76.6	12.2	11.2
Children's immunization	—	—	—	—	41.3	22.0	32.6	45.4

Data source: 2005 and 2011 Beijing survey

The research team learned in the field that there have been changes in the migrant demographics in recent years: migrants are younger, more than half of them born after 1980. The younger migrants are better educated than the earlier cohorts and their parents; their families have a higher economic status; they have a better knowledge of health issues and more ways of accessing information, such as by internet and cell phone; and they have higher expectations of their lives in the cities. Services that are low cost or even free are less attractive to them if the quality is not satisfactory. They do not like services specifically targeted to migrants, and do not like to be referred to as "peasant worker (*nong min gong*)." They are much more likely to ask for the same benefits and services as the local residents. Research projects, interventions and the service system need to adjust to these new migrants.

Contraceptive use among migrant men

Most of the migrant men surveyed in 2004 in Beijing—whether married or single, with or without a girlfriend—had heard about condoms (92.7 per cent). About 49 per cent said that they had learned about condoms from TV, about the same percentage from a newspaper or magazine, and 37 per cent from health professional or family planning workers. Table 4 shows the responses by marital status and divides single migrants between those with and those without a girlfriend. This table shows that interpersonal communication about condoms (their existence, use and where to get them) is a less common practice compared to other sources, and that single men without a girlfriend were less well-informed about obtaining condoms.

Table 4: Knowledge about condom by marital status, migrants (per cent of cases)

	Married (n=575)	Single w/ girlfriend (n=228)	Single w/o girlfriend (n=80)
Source of knowledge about condoms			
TV	49.7	49.0	41.0
Newspaper/magazine	28.7	37.5	19.2
Health professional/Family Planning staff	47.5	55.0	32.1
Advertisement/poster	38.1	34.5	35.9
Radio	43.7	28.5	17.9
Friends	19.1	36.0	19.2
Workmate	6.9	5.0	1.3
Family member/relative	16.1	25.0	15.4
Employer	4.1	3.0	
Average number of sources	2.4	2.4	1.8
Place where condoms were obtained			
Drug store	42.6	43.1	34.8
Hospital/family planning clinic	30.8	46.3	18.9
Family planning service station	30.2	41.6	18.2
Shop	17.6	12.5	10.6
Family planning office in workplace	18.0	16.1	13.6
Vending machine	16.3	18.8	11.4
Private clinic	10.3	24.3	4.5
Average number of places to get condom	2.3	2.3	1.9
Whether agree with “use condom correctly can prevent STD/AIDS”			
Agree	69.3	52.6	46.7
Disagree	10.8	8.9	6.7
Do not know	19.9	38.5	46.7

Data source: Beijing migrant men survey, 2004

A result of a multivariate regression (see table B2 in Appendix B) revealed that marital status, exposure to media, education and income are highly related to knowledge about condoms among migrants. Age still has a marginally significant effect with other variables controlled, which implies that there has been a change over time regarding condom knowledge. Monthly income is not only a measure of financial capacity but also an indirect measure of the status of the person’s occupation. Those who are self-employed, and those who are in retailing, management and technical positions tend to earn more. Social contact and education also differ from low income to higher income groups. For migrants, reading a newspaper almost every day, marital status and monthly income play more important roles. While for local residents, age and watching TV are not significant determinants, and the effect of education is different from that of migrants—migrants with senior high or higher education have more knowledge than the group with lower education, while for local residents, the positive effect of higher education is only significant with college or higher education. Marital status and reading newspapers have very similar effects on condom knowledge on migrants and local residents.

Information about condom use was collected among those who had had sex, both married and single: 63.6 per cent of single men who reported currently having a girlfriend reported that they had had sex; and furthermore, 31.3 per cent single men currently without a girlfriend had had sex. Table 5 lists information relates to condom use among migrants.

Table 5: Information of condom use among migrants (per cent)

Response		
Had sex, married (n=575)		97.9
Had sex, single (n=308)		55.2
Among those who had sex:		
Used contraception (n=697)		53.4
	Used contraception, married	60.7
	Used contraception, single	25.9
Used condom (n=648)	Used condom, married	49.7
	Used condom, single	25.2
Time of first use of condom (n=332)	Before marriage	30.1
	After marriage before first pregnancy	30.7
	After the first child born	39.2
Used the first time had sex (n=334)		24.3
Who initiated the use (n=335)	Partner	41.9
	My self	55.9
	Other	2.2
Frequency of the use (n=339)	Every time	10.3
	Sometime	38.1
	Occasional	51.6
Have bought condom (n=391)		63.9
What brand prefer if bought	Domestic	44.5
	Imported	21.9
	Does not matter	33.6
Affordability if bought	Too expensive	23.9
	Affordable	51.5
	Not expensive at all	24.6
Where condom was obtained (multiple choice)		
	Department store	23.3
	Drug store	61.7
	Vending machine	24.0
	Family planning clinic in hospital	48.3
	Family planning service station	46.0
	Private clinic	18.6
	Family planning office in workplace	25.2

Data source: Beijing migrant men survey, 2004.

A popular practice in rural China is to have the first child as soon as possible after marriage, and an IUD is usually used after the birth of the first child. Condoms are often used as a temporary method before the IUD insertion or between changing methods of contraception. Of the married migrants who have used condoms, 42 per cent reported that the first use was after the birth of their first child. Among the single sexually active migrants, only 29 per cent reported that they had used condoms. More local men used condoms before the first pregnancy (40.2 per cent of local residents versus 30.7 per cent of migrants), and more local men used condoms the first time they had sex (34.3 per cent versus 24.3 per cent of migrants). The differences are statistically significant.

The survey question about the source of condom supply was a multiple choice question which allowed respondents to mark all possible sources of condoms. The major source of condom supply for migrants was drugstores (61.7 per cent), the next was family planning clinics in hospitals (48.3 per cent) or family planning service stations (36.0 per cent); 24 per cent respondents chose vending machines, and 25.2 per cent reported that they got condoms from the family planning office at their workplace. Compared with migrants, local residents have significantly more places to obtain condoms, and twice as many local men said that they could obtain condoms at their workplace.

Condom use among migrants is highly related to marital status, age, knowledge about condoms, education and exposure to media, according to the results of our multivariate analysis (see table B3 in Appendix B). Married men are three times more likely to use condoms than single men, as are men aged 20-24, who are better informed about condoms, and those who watch TV. In the last category, those who watched TV were twice as likely to have used condoms than whose who hadn't watched TV in the last four weeks.

Condom use had a high correlation to monthly income among migrants, with a higher percentage of condoms bought belonging to a higher income group, while income did not make any difference to for local residents. Local residents with a higher education, who watch TV more often, and have learned about condoms from several sources are more likely to buy them. A logistic regression shows that Beijing residents are still twice as likely to have bought condoms than migrants, even with all above-mentioned variables controlled.

To a hypothetical question, "Would you use condoms for STD/HIV/AIDS prevention (when there were possible risks)?", 59.2 per cent of migrant respondents said that they would, while 69.8 per cent of local residents said that they would. The difference is statistically significant.

The urban family planning service differs from the rural family planning service, both in service delivery systems and approach. A change in government policy means that family planning services will be provided by the service at the place of residence: this means that migrants will now be served by urban family planning agencies. Therefore, there should be more specific services targeted to migrant men. Based on the results above, it is clear that the knowledge about and use of condoms among migrants are more related to factors relating to individuals, such as marital status, education attainment, exposure to media, income and employment, as compared with local residents. As such, the service should be designed to cover those who are in a disadvantaged position, such as single men and men with low education and lower incomes. In addition, the finding that fewer migrants, compared to local residents, can get condoms from their workplace, implies a limitation in the coverage of the service

network, especially for those who are employed by private and small companies or self-employed, which is a substantial per cent of the migrant men.

Although efforts have been made by governmental and non-governmental organizations as well as international agencies for risk prevention among men migrants, especially migrants in cities who do not reside with their families, the impact has not been assessed yet.

Conclusion and Discussion

The findings from the three surveys—the Beijing survey, the Guangzhou survey and the Beijing male migrant survey—mostly support the existing literature related to migrants' reproductive health. First, migrants were found to have less access to health care and were less likely to seek health care for some aspects of reproductive health, such as reproductive tract infection or early prenatal care; second, they often have relatively limited sources of service; and third, they seem to have less knowledge and information about reproductive health care.

Furthermore, the research findings also display some changes brought by intervention actions over time. The health promotion intervention package was found more effective in knowledge gain among unmarried migrant women in Guangzhou; an increasing proportion of migrant women use the public health service in Beijing, especially young women, and a majority of migrant women delivered their baby in hospitals, and nearly all of them received some prenatal care.

The findings also highlight the diversity of migrants. Factors such as age, education, marital status, personal experience and income play different roles in both health status and service use. Therefore, these issues should not be addressed or investigated as if migrants are a homogenous group. Special attention should be paid to the new generation—the "post-80s" generation—to their strong awareness of rights, high expectation of city life, stronger demand for equal access to public service, and their dislike of service provision aimed only at migrants.

Health issues of migrants received governmental attention. "Suggestions on Promoting Equalization of Primary Public Health Service", issued by the Ministry of Health, Ministry of Finance and National Population, and the Family Planning Commission in July 2009, defines 21 service items by nine categories. The Ministry of Health developed "National Protocol of Public Health Service (2009)" in October 2009. Both documents call for all public health services to be made available to current residents, including migrants. Although the documents are only principles without operational guidance—which means that local government may implement them as they see fit—they clearly define the rights of migrants and the responsibilities of local government. Some improvement can be expected as the major destination cities make more of an effort to implement these guidelines.

In January 2012, the National Bureau of Statistics announced that the population of urban dwellers in 2011 exceeds the rural population, for the first time in the history of China. Migration is mainly responsible for this change. The urban system of public service, including the health service system, must continue to deal with the challenges brought on by the large and increasing urban population. Meanwhile, health system reform is on the way—some pilot cities intend to integrate urban and rural health insurance systems into one system, which should eliminate some obstacles and promote

health service utilization of migrants. Research regarding the reproductive health of migrants needs to catch up with the changes in the migrant population itself, as well as with the change brought about by the ongoing health system reform.

Although some improvements have been clearly observed in recent years, none of research has been able to assess the effect of policy change or the contribution of the variety of efforts toward improvement. This is a major limitation of the currently available data, and is one of the limitations of this paper. Another major limitation is that it only covers limited components of reproductive health instead of all, and only involves limited sub-groups of migrant population.

Appendix A: Data Sets from Three Surveys

Guangzhou survey

The purpose of the Guangzhou survey was to investigate the current reproductive health status and related knowledge as well as access to related information and services of female migrant workers in Guangzhou. The survey was conducted in eight factories of Huangpu District by a research team from Sun Yat-sen University during July and September of 2008 (Lu et al., 2012). The factories were randomly selected from 32 eligible factories in the district, a major industrial district in the Guangzhou with a large migrant population. Factories were eligible if they were non-state-run and if they had between 200 and 400 female migrant workers. In all the factories, the criteria for eligible participants were: (i) being a rural-to-urban female migrant, aged between 18 and 29; (ii) having worked at the site for more than one month; and (iii) giving oral informed consent.

A self-administered questionnaire was developed based on a literature review of related studies that had taken place in other cities of China or other Asian developing countries. The questionnaire had five components: (i) general demographic characteristics; (ii) self-reported symptoms of reproductive tract infection (RTI) and seeking medical care; (iii) sexual experience and contraceptive use; (iv) reproductive health care access; (v) knowledge of sexual and reproductive health (SRH). Anonymous questionnaire-based interviews were conducted by experienced and well-trained interviewers from the School of Public Health in the Sun Yat-sen University. Among 1,455 female migrant workers were eligible for the study, of which 1,346 (92.5 per cent) completed the questionnaire. The demographic profile of the respondents is presented in Table A1.

Table A1: Profiles of respondents of Guangzhou Survey, 2008

Variables	unmarried		married		p(χ^2 st)	Total	
	N	per cent	N	per cent		N	per cent
Factory type							
Labour-intensive	756	91.0	494	95.9	0.001	1250	92.87
Services	75	9.0	21	4.1		96	7.13
Education level					0.000		
elementary school or less	9	1.1	19	3.7		28	2.08
junior high school	389	46.8	360	69.9		749	55.65
senior high school	293	35.3	104	20.2		397	29.49
junior college or more	140	16.8	32	6.2		172	12.78
Age(years old)					0.000		
18-21	465	56.0	14	2.7		479	35.59
22-25	291	35.0	128	24.9		419	31.13
26-29	75	9.0	373	72.4		448	33.28

Data source: 2008 Guangzhou survey

Beijing survey

The goal of the first part of the Beijing survey was to understand the impact of migration experience on currently migrating rural women, understand their education and training needs, and identify effective ways of interventions that empower migrant women regarding their development-related capacity, including health behaviour (Zheng et al., 2006). The survey, supported by UNESCO Beijing Office, took place in one district of Beijing and one district of Chengdu in October 2005 and was conducted by a research team from Chinese Academy of Social Sciences (CASS) and Sichuan

Academy of Social Sciences. Migrant women aged 15 to 40 who have been in the city for at least three months were selected by a quota sampling strategy according to age, migration stages, marital status and occupation. In Beijing 1,008 responses were obtained while in Chengdu the number was 623. The responses were mostly self-administered with some help from trained interviewers. The information relevant to this paper includes: (i) demographic and social-economic profiles of respondents; (ii) migration history of respondents; (iii) marriage and childbearing; (iv) knowledge about fertility regulation, HIV/AIDS prevention and contraception use; (v) morbidity and health service use.

The Population and Family Planning Bureau of Fengtai District, Beijing, conducted the second part in November 2011 with technical assistance from the CASS research team. It is a survey among migrants to understand public service needs, including family planning and reproductive health service needs. The survey questionnaire used some of the same questions as in the 2005 survey and adopted a similar sampling strategy but expanded the sample to men and women aged 16-49 who had lived in Beijing for at least one month. The 2011 survey interviewed 1,459 men and 1,548 women migrants. In this paper we will use the Beijing sample of the 2005 survey, together with women's sample of the 2011 survey, for a comparative analysis. The total sample used thus is 1,008 in 2005 and 1,548 in 2011. The respondents' profiles of the two surveys are in table A2.

Table A2: Profiles of respondents of Beijing two-wave Survey, 2005 and 2011

	2011	2005		2011	2005
Age group			**Marital status**		
15-19	7.1	7.4	Unmarried/cohabitation	28.0	23.8
20-24	19.1	20.2	Married live w/ spouse	64.6	61.1
25-29	19.4	25.7	Married not live w/ spouse	6.6	14.0
30-34	19.8	24.9	Divorced/widowed	0.7	1.1
35-39	16.4	18.8	**Employment**		
40+	18.3	3.0	Retail	30.0	27.8
Education			House-keeping/other service	26.2	12.4
Primary or less	8.4	18.3	Hotel/restaurant service	16.2	30.4
Secondary	41.8	58.6	Construction/transportation	2.5	3.0
Senior high	28.4	19.6	Others	10.1	16.4
College or above	21.4	3.5	Unemployed	15.0	10.0

Data source: 2005 and 2011 Beijing survey.

Beijing migrant men survey

This survey took place earlier than the others analysed in this chapter. It was conducted in 2004 when the national statistics showed that condom use only made up 5.7 per cent of total contraceptive use and HIV/AIDS transmission among migrants was a major concern. The survey on condom use among migrant men was conducted in one district of Beijing with a large in-migrant population, about 0.9 million (which was about one fourth of total in-migrants in Beijing), as part of a WHO-supported research project (Zhou et al., 2006). The survey took place in four of 42 sub-districts, and each sub-district surveyed a group of men under age 40, both migrants and Beijing local residents in similar occupations. Respondents filled out the questionnaire voluntarily at the site of the survey collection, mostly gathered in a meeting room in their workplace. An investigator was present to introduce the survey, to check the quality of responses, and to answer questions. The total sample size is 1,282, with 885 migrants and 397 local residents. Table A3 is a profile of the survey respondents. The survey questionnaire covered basic individual information, knowledge about condom and the source of

knowledge, experience of condom and contraceptive use, access to condom if ever used, and attitude toward condom use, mostly through multiple choice responses.

Table A3: Profiles of respondents, Beijing migrant men survey, 2004 (per cent)

		Migrants (n=885)	Local residents (n=397)
Age group	<20	13.6	.3
	20-24	24.3	11.3
	25-29	20.5	27.7
	30-34	23.1	24.3
	≥35	18.5	36.4
Education			
	Illiterate	1.9	.5
	Primary school	7.7	.5
	Middle school	65.2	11.8
	Senior high or vocational school	21.4	38.4
	College or higher	3.8	48.7
Occupation			
	Factory worker	1.3	6.9
	Construction worker	41.8	11.4
	Restaurant or service worker	3.5	11.4
	Self-employed	43.7	1.3
	Management	3.0	22.2
	Technical	2.2	27.0
	Government staff	.2	1.1
	Others	4.3	18.8
Marital status			
	Married	65.1	69.0
	Single but has girlfriend	25.8	16.0
	Single currently without girlfriend	9.1	15.0
Number of children	(of married men)		
	0	5.3	16.4
	1	62.5	82.4
	2	30.2	1.2
	3 and more	2.0	
Living arrangement	(currently living with)		
	Wife or girlfriend	37.1	55.0
	Parents	3.2	16.6
	Relatives	3.7	1.0
	Workmates	17.7	6.1
	Friends/village fellows	28.5	2.6
	Living alone	7.8	15.1
	Other	1.9	3.6
Type of housing			
	Dorm provided by employer	49.6	15.0
	Live in employer's house	4.2	2.6
	Self-rented	38.5	26.1
	Own house	7.0	48.8
	Other	.7	7.5
Period stay in Beijing	(25, 50, and 75 percentiles)	1.3, 3.2, 5.2 (years)	

Data source: Beijing migrant men survey, 2004

Appendix B: Results of Multivariate Analysis

Table B1: Logistic regression of SRH knowledge low score

Items	Unmarried (n=831)			Married (n=515)		
	β	OR(95%CI)	p	β	OR(95%CI)	p
Age	-0.27	0.72(0.62-0.89)	0.039	-0.16	0.85(0.52-0.96)	0.043
Educational level			0.000			0.000
elementary school or less [a]						
junior high school	-0.26	0.77(0.27-2.20)	0.068	-0.68	0.51(0.21-1.20)	0.122
senior high school	-1.22	0.30(0.12-0.85)	0.024	-1.45	0.23(0.09-0.55)	0.011
junior college or more	-2.67	0.07(0.02-0.20)	0.000	-2.59	0.05(0.02-0.14)	0.006
Did you get SRH/FP information?						
Yes [a]						
No	0.86	2.36(1.75-3.20)	0.000	0.64	1.85(0.85-2.58)	0.232
Did you consult SRH problems?						
Yes [a]						
No	0.23	1.24(1.05-2.13)	0.032	0.52	1.32(0.92-1.82)	0.152
Had you ever had sex?						
Yes [a]						
No	0.52	1.89(1.22-2.31)	0.000	-0.63	0.86(0.63-1.12)	0.123
Did you get SRH/FP services?						
Yes [a]						
No	0.27	1.31(0.86-1.99)	0.211	1.05	2.86(2.22-3.87)	0.001
Any reported reproductive symptoms?						
Yes [a]						
No	0.39	1.47(1.11-1.94)	0.006	0.31	1.36(1.04-1.78)	0.025

a: Reference group. **Data source:** 2008 Guangzhou survey.

Table B2: Knowledge about condom and related variables, standardized coefficient from a linear regression

	Migrant (n=843)		Local (n=370)	
Variables	B	p-value	B	p-value
Age	-.083	.062	-.087	.187
Married	.149	.001	.147	.015
Watch TV almost every day in the last four weeks	.075	.050	.019	.720
Read newspaper almost everyday	.157	<.001	.148	.008
Education (reference group is middle school)				
Elementary education or lower	-.010	.765	-.066	.187
Senior high education	.079	.022	.064	.389
College education or higher	.069	.039	.195	.021
Monthly income	.122	.001	.176	.003
p-value of F test for the regression model		<.001		<.001
R^2 adjusted	.117		.143	

Note: To examine knowledge and relationship with other factors, we calculated a knowledge score as the sum of number of sources of condom access and a value of 4 if knowledgeable about the condom and STD/AIDS prevention. This calculation put more weight on the latter since traditionally people treat condom only as a way of pregnancy prevention. Data source: Beijing migrant men survey, 2004.

Table B3: Relationship between condom use and other variables, estimates from a logistic regression (n=637)

Variable	B	Sig.	Odds ratio
Married (ref. Single)	1.139	<.001	3.123
Age group (ref. 34-40)			
<20	.533	.281	1.704
20-24	.435	.149	1.546
25-29	.519	.042	1.681
30-34	.380	.118	1.462
Condom knowledge score	.145	<.001	1.156
Education (ref. Middle school)			
Elementary or lower	-.292	.346	.747
Senior high	.393	.068	1.481
College or higher	.890	.050	2.436
Watch TV (ref. Never watched)			
Almost everyday	.994	.001	2.702
Sometime	.826	.004	2.283
Read newspaper (ref. Sometime)			
Almost everyday	-.149	.499	.861
Constant	-2.083	.004	.125

Classification correctly 64.2%, -2 Log likelihood=785.682, and Nagelkerke R^2 =.175. **Data source:** Beijing migrant men survey, 2004.

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